

Title: Gravitational-wave data analysis with spinning merger-ringdown waveforms

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Abstract: "The recent availability of high-quality, gravitational merger-ringdown waveforms from spinning black-hole systems has made possible the development of multi-mode GW templates for use in data-analysis studies of current and proposed interferometric GW detectors. We report on recent work at NASA Goddard, analyzing the most significant modes from aligned-spin black-hole-binary mergers. From these, we have developed time-domain merger-ringdown GW templates covering the aligned-spin portion of parameter space. We also discuss how using the full information content of aligned-spin mergers can significantly reduce uncertainties in some parameters, emphasizing the significant gains possible in the last stages of merger, inaccessible to inspiral-only post-Newtonian templates."